

DOCUMENT RESUME

ED 176 689

HE 011 847

AUTHOR Brown, George H.
 TITLE Degree Awards to Women: An Update.
 INSTITUTION National Center for Education Statistics (DHEW),
 Washington, D.C. Adult and Vocational Education
 Surveys and Studies Branch.
 REPORT NO NCES-79-360
 PUB DATE Jan 79
 NOTE 36p.
 AVAILABLE FROM National Center for Education Statistics, Washington,
 DC

EDRS PRICE MF01/PC02 Plus Postage.
 DESCRIPTORS *Bachelors Degrees; College Graduates; Comparative
 Statistics; *Doctoral Degrees; Enrollment Trends;
 *Females; Graduate Study; *Higher Education; *Masters
 Degrees; *Professional Education; Sex Differences;
 Trend Analysis

ABSTRACT

An update, as of 1977, of four National Center for Education Statistics reports concerned with changing patterns in degree awards to women is presented. Separate chapters are devoted to bachelor's, master's, doctoral, and first-professional degrees. Each chapter consists of an overview, an examination by field of study of the percentage representation of women among degree recipients in 1977 as compared with 1971, and an examination of the relative popularity of different fields of study for men and for women, and how this has changed between 1971 and 1977. An overall finding of the report is that most of the trends identified in the four small reports continue to be evident in the 1977 data. Among findings are that at all four degree levels women continued to increase their percentage representation among degree recipients; that in 1977 women accounted for 46.2 percent of the bachelor's degrees, 47.1 percent of the master's degrees, 24.3 percent of the doctoral degrees, and 18.7 percent of the first-professional degrees; and that at both the bachelor's and master's levels women tended to show the greatest increases in those fields in which they have traditionally had small representation. (Author/PHR)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

ED176689

HE011847

Degree Awards to Women: An Update

by
George H. Brown
National Center for
Education Statistics

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

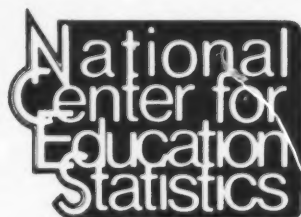
Joseph A. Califano, Jr., *Secretary*

Education Division

Mary F. Berry, *Assistant Secretary for Education*

National Center for Education Statistics

Marie D. Eldridge, *Administrator*



NATIONAL CENTER FOR EDUCATION STATISTICS

"The purpose of the Center shall be to collect and disseminate statistics and other data related to education in the United States and in other nations. The Center shall . . . collect, collate, and, from time to time, report full and complete statistics on the conditions of education in the United States; conduct and publish reports on specialized analyses of the meaning and significance of such statistics; . . . and review and report on education activities in foreign countries."--Section 406(b) of the General Education Provisions Act, as amended (20 U.S.C. 1221e-1).

FOREWORD

During 1978, NCES published four small reports describing the changes which took place between 1971 and 1976 in the representation of women among recipients of bachelor's, master's, doctoral, and first professional degrees. Degree award data have recently become available for the academic year ending June 1977. The present report devotes one chapter to each of the four degree levels, and in each case examines the trends in degree awards to women between 1971 and 1977.

The data on which this report is based were collected through the annual Survey of Degrees and Other Formal Awards Conferred (part of the Higher Education General Information Survey (HEGIS)).

Rolf M. Wulfsberg
Acting Director
Division of Postsecondary and
Vocational Education Statistics

George H. Brown
Acting Chief
Issues Analysis Section

January 1979

CONTENTS

	<u>Page</u>
FOREWORD	111
 CHAPTER	
I. EXECUTIVE SUMMARY	1
II. BACHELOR'S DEGREES	3
III. MASTER'S DEGREES	9
IV. DOCTORAL DEGREES	15
V. FIRST PROFESSIONAL DEGREES	21
 APPENDIXES:	
A. Percentage of women among bachelor's degree recipients, by discipline division: 1971-72 through 1976-77	26
B. Percentage of women among master's degree recipients, by discipline division: 1971-72 through 1976-77	28
C. Percentage of women among doctoral degree recipients, by discipline division: 1971-72 through 1976-77	30
D. Percentage of women among first professional degree recipients, by field of study: 1971-72 through 1976-77 . .	32

Tables

1. Percentage of women among bachelor's degree recipients, by discipline division: Aggregate United States, 1971 and 1977 . . .	4
--	---

CONTENTS -- Continued

Page

Tables - Continued

2. Distribution of bachelor's degrees, by sex and discipline division: Aggregate United States, 1971 and 1977	7
3. Percentage of women among master's degree recipients, by discipline division: Aggregate United States, 1971 and 1977 . .	10
4. Distribution of master's degrees, by sex and discipline division: Aggregate United States, 1971 and 1977	13
5. Percentage of women among doctoral degree recipients, by discipline division: Aggregate United States, 1971 and 1977 . .	16
6. Distribution of doctoral degrees, by sex and discipline division: Aggregate United States, 1971 and 1977	19
7. Percentage of women among first professional degree recipients, by field of study: Aggregate United States, 1971 and 1977 . . .	22
8. Distribution of first professional degrees, by sex and field of study: Aggregate United States, 1971 and 1977	24

Chapter 1

EXECUTIVE SUMMARY

This report constitutes an update, as of the academic year 1977,^{1/} of four NCES reports concerned with changing patterns in degree awards to women. Separate chapters are devoted to bachelor's, master's, doctoral, and first professional degrees, respectively. Each chapter consists of: (a) an overview, (b) an examination by field of study of the percentage representation of women among degree recipients in 1977 as compared with 1971, and (c) an examination of the relative popularity of different fields of study for men and for women, and how this has changed between 1971 and 1977.

An overall conclusion emerging from this report is that most of the trends evident in the four small reports published last year continue to be evident in the 1977 data. Some of the principal highlights of the findings are:

- (1) At all four degree levels, women continued to increase, at least slightly, their percentage representation among degree recipients.
- (2) In 1977 women accounted for 46.2 percent of the bachelor's degrees, 47.1 percent of the master's degrees, 24.3 percent of the doctoral degrees, and 18.7 percent of the first professional degrees.
- (3) At both the bachelor's and master's degree levels, women tended to show the greatest increases in percentage representation in those fields in which they have traditionally had small representation. Their representation in traditionally female fields, such as home economics, letters, etc., remained virtually unchanged.
- (4) At the doctoral degree level, the opposite trend was evident, viz. women's gains were greatest in the traditionally female fields and least in the traditionally non-female fields.

^{1/}

In this report, academic years will generally be referred to by their terminal year. For example, the academic year 1976-77 is referred to as 1977.

- (5) Education continued to be the most popular degree field for women at the bachelor's, master's, and doctoral degree levels. For men, business and management was the most popular field for bachelor's degrees, while education was the most popular field for advanced degrees.
- (6) Women continued to increase their percentage representation in all eight of the first professional fields, such as medicine, law, etc., in which trends could be measured, but are still a distinct minority in all fields.
- (7) The two fields of law and medicine together accounted for 85 percent of all first professional degrees awarded to women and 71.4 percent of all professional degrees awarded to men.

Chapter II

BACHELOR'S DEGREES

Overview

In 1971, the total number of bachelor's degrees awarded in the United States^{1/} was 846,110, and 43.4 percent of these were awarded to women. In 1977, the total number of bachelor's degrees awarded was 928,256, and the women's percentage had risen to 46.2. This was a minute increase over 1976, when the women's percentage was 45.6 and represents a continuation of the trend evident then. In fact, if the data are examined on a year-by-year basis (see appendix A) it is evident that the women's percentage representation increased, at least slightly, in each of the 7 years under consideration.

If this trend continues, within a few years women will account for half of all bachelor's degrees awarded.

Field of Study

Table 1 shows the percentage representation of women among bachelor's degree recipients in 1971 and 1977, categorized by discipline division, i.e., by field of study. The general character of this table is quite similar to the corresponding table in the earlier report using 1976 data. Women still predominate (account for more than half the degrees awarded) in those fields where they have traditionally been dominant: area studies, education, fine and applied arts, foreign languages, health professions, home economics, letters, and library science. In addition, it should be noted that psychology has been a predominantly female field since 1974, when the women's percentage among psychology degree recipients reached 50.5. This percentage has continued to grow and reached 56.7 in the 1977 data.

In 1971, there were eight fields in which women accounted for less than 20 percent of the bachelor's degrees awarded. These were: agriculture and natu-

^{1/}

Here and throughout this report, statements about the number of degrees awarded refer to the aggregate United States, which includes outlying territories such as Guam and Puerto Rico. These outlying territories account for less than 1 percent of the total number of degrees awarded.

Table 1.--Percentage of women among bachelor's degree recipients, by discipline division: Aggregate United States, 1971 and 1977

Discipline division	1971		1977		Percentage point change
	Total bachelor's degrees awarded	Percent awarded to women	Total bachelor's degrees awarded	Percent awarded to women	
All discipline divisions	846,110	43.4	928,256	46.2	2.8
Agriculture and natural resources	12,710	4.2	21,531	22.2	18.0
Architecture and environmental design	5,578	12.0	9,252	21.4	9.4
Area studies	2,497	52.9	2,970	56.0	3.1
Biological sciences	36,033	29.3	54,193	36.4	7.1
Business and management	116,709	9.3	153,783	23.6	21.4
Communications	10,802	35.3	23,221	44.3	30.4
Computer and information sciences	2,388	13.6	6,426	23.9	10.3
Education	177,638	74.4	145,398	72.2	- 2.2
Engineering	50,357	.8	49,677	4.5	3.7
Fine and applied arts	30,447	59.7	42,102	61.4	1.7
Foreign languages	20,433	74.8	14,302	76.2	1.4
Health professions	25,484	77.2	57,845	79.2	2.0
Home economics	11,271	97.3	17,567	95.9	- 1.4
Law	545	5.0	559	27.5	22.5
Letters	73,398	61.0	47,502	56.7	- 4.3
Library science	1,013	92.0	781	90.9	- 1.1
Mathematics	24,918	38.1	14,303	41.6	3.5
Military science	357	.3	992	.3	0
Physical sciences	21,549	14.0	22,618	20.1	6.1
Psychology	38,154	44.7	47,794	56.7	12.0
Public affairs and services	9,303	49.1	36,745	45.1	- .4
Social sciences	156,698	37.0	118,322	39.4	2.6
Theology	3,744	27.2	6,136	25.7	- 1.5
Interdisciplinary studies	14,084	29.2	34,237	47.0	17.8

ral resources, architecture and environmental design, business and management, computer and information sciences, engineering, law, military science, and physical sciences. In 1977, the women's percentages had risen to above 20 for all except two of these fields. The exceptions were engineering and military science.

The 1976 data, compared with the 1971 data, had indicated percentage point gains by women in all but 5 of the 24 fields. The "declining fields" (which actually declined by only trivial amounts) were: education, home economics, letters, and public affairs and services. (Military science was unchanged at zero percent.) It is evident that these "declining fields" are the ones that are generally regarded as women's fields. The 1977 data show that these same fields continued their slight decline and that two others also declined trivially: library science (1.1 percent) and theology (1.5 percent).

The 1977 data, like the 1976 data, reveal an inverse relationship between the size of the women's representation in 1971 and the amount of gain evident in the later year. In the tabulation below, the fields have been grouped on the basis of percentage representation of women in 1971, and the average percentage point change evident in 1977 is shown for each group. It is quite apparent that women are continuing to make their greatest gains in those fields in which traditionally they have been least represented. In contrast, they show minimal decreases or no change, in their representation in the traditionally female fields.

Women's percentage representation in 1971	Discipline division	Average percentage point change in 1977
80 - 99	Home economics, library science	-1.2
60 - 79	Education, foreign languages, health professions, letters	- .7
40 - 59	Area studies, fine and applied arts, psychology, public affairs and services	3.2
20 - 39	Biological sciences, communications, interdisciplinary studies, mathe- matics, social sciences, theology	9.9
0 - 19	Agriculture and natural resources, architecture and environmental design, business and management, computer and information sciences, engineering, law, military science, physical sciences	11.4

Relative Popularity of Different Fields

The previous section examined the extent to which women were represented among all of the bachelor's degree recipients in each field. In this section, we shall consider all women degree recipients and examine their distribution across fields of study (see table 2) for indications of the relative popularity among women of the various bachelor's degree fields. For comparison purposes, table 2 also includes 1971 data for women, and both 1971 and 1977 data for men.

It is evident in table 2 that education continues to be the most popular field for women. It accounted for 25 percent of all bachelor's degrees awarded to women in 1977, down from 36 percent in 1971. This decline is a continuation of that evident in our earlier report. The continuing slump in the market demand for teachers is probably a significant factor in this decline.

In 1971 the six top ranking fields for women accounted for about 79 percent of women's degrees. In 1977, the corresponding percentage was 67 (it was 68 in 1976). Thus, there is a slow, but continuing, increase in the diversification of women's fields of study. It is interesting to note that business and management ranked 4th in the 1977 data, as compared with 9th position in the 1971 data.

Looking at the data for men in table 2, we see that business and management was the most popular field both in 1971 and 1977, accounting for 22.1 percent and 23.5 percent, respectively. The second most popular field for men, in 1977, was social sciences, which accounted for 14.4 percent of the men's degrees, down from 20.6 percent in 1971.

The six top ranking fields for men in 1977 accounted for 66.5 percent of all degrees awarded to men. The corresponding figure for women was 67.1 percent. It is clear that, on the basis of this index, men and women are essentially equal with regard to their extent of diversification across fields of study.

Table 2.--Distribution of bachelor's degrees, by sex and discipline division:
Aggregate United States, 1971 and 1977

Discipline division	Percentage of degrees awarded to:			
	<u>Women</u>		<u>Men</u>	
	1971	1977	1971	1977
All discipline divisions	99.6	100.2	99.7	100.0
Agriculture and natural resources	.1	1.1	2.5	3.4
Architecture and environmental design	.2	.5	1.0	1.5
Area studies		.4		.3
Biological sciences	2.9	4.6	5.3	6.9
Business and management	2.9	8.4	22.1	23.5
Communications	1.0	2.4	1.5	2.6
Computer and information sciences		.4	.4	1.0
Education	36.0	24.5	9.5	8.1
Engineering	.1	.5	10.4	9.5
Fine and applied arts	4.9	6.0	2.6	3.3
Foreign languages	4.2	2.5	1.1	.7
Health professions	5.4	10.7	1.2	2.4
Home economics	3.0	3.9	.1	.1
Law	(*)	(*)	.1	.1
Letters	12.2	6.3	6.0	4.1
Library science	.3	.2	(*)	(*)
Mathematics	2.6	1.4	3.2	1.7
Military science	(*)	(*)	.1	.2
Physical sciences	.8	1.1	3.9	3.6
Psychology	4.6	1.3	4.4	4.1
Public affairs and services	1.2	3.9	1.0	4.0
Social sciences	15.8	10.9	20.6	14.4
Theology	.3	.4	.6	.9
Interdisciplinary studies	1.1	3.8	2.1	3.6

*Less than .05 percent.

NOTE.--Totals may not add to 100.0 percent because of rounding.

Chapter III

MASTER'S DEGREES

Overview

In 1971, 231,486 master's degrees were awarded in the United States; 40.1 percent of these were awarded to women. In 1977, 318,241 master's degrees were awarded, and the women's percentage had grown to 47.1 percent (up slightly from 46.4 percent in the previous year). The year-by-year data, presented in appendix B, reveal that the women's percentage of master's degree recipients increased every year between 1971 and 1977.

Field of Study

Table 3 shows the total number of master's degrees awarded and the percentage awarded to women in each of 24 discipline divisions for 1971 and 1977. This table also shows the change in percentage points for each of the 24 fields.

Table 3 shows that women's percentage representation increased between 1971 and 1977 in all but 4 of the 24 fields. The exceptions were: home economics (-2.8 percent); library science (-1.7 percent); public affairs and services (-3.3 percent); and biological sciences which remained unchanged at 33.8 percent.

The 1971 data showed women predominating in six fields: education, foreign languages, health professions, home economics, letters, and library science. The 1977 data, like the 1976 data, showed women still predominating in the same six fields plus one additional field: fine and applied arts. All of these fields have traditionally been regarded as women's fields. With the exception of health professions, none of them would appear to offer good prospects for employment today.

Although women continue to predominate in the same fields, it is of interest to examine the pattern of increases and decreases among the 24 fields. Are the increases concentrated in the traditionally female fields or elsewhere?

Table 3.--Percentage of women among master's degree recipients, by discipline division: Aggregate United States, 1971 and 1977

Discipline division	1971		1977		Percentage point change
	Total master's degrees awarded	Percent awarded to women	Total master's degrees awarded	Percent awarded to women	
All discipline divisions	231,486	40.1	318,241	47.1	7.0
Agriculture and natural resources	2,458	5.9	3,735	14.6	8.7
Architecture and environmental design	1,724	14.1	3,219	22.5	8.4
Area studies	1,017	39.0	989	46.9	7.9
Biological sciences	5,756	33.8	7,154	33.8	0
Business and management	26,654	3.9	46,650	14.3	10.4
Communications	1,856	34.6	3,092	44.4	9.8
Computer and information sciences	1,588	10.3	2,793	16.7	6.4
Education	89,067	52.2	126,730	65.8	13.6
Engineering	16,457	1.1	16,251	4.4	3.3
Fine and applied arts	6,678	47.4	8,638	51.2	3.8
Foreign languages	4,779	65.4	3,178	69.5	4.1
Health professions	5,902	55.4	13,092	67.9	12.5
Home economics	1,453	93.9	2,340	91.1	- 2.8
Law	955	4.8	1,574	13.2	8.4
Letters	12,743	57.5	10,495	59.5	2.0
Library science	7,028	81.3	7,592	79.6	- 1.7
Mathematics	5,201	29.3	3,698	35.1	5.8
Military science	2	0	43	2.3	2.3
Physical sciences	6,386	13.4	5,345	16.6	3.2
Psychology	4,438	37.2	8,320	48.1	10.9
Public affairs and services	8,406	48.8	19,696	45.5	- 3.3
Social sciences	16,522	28.3	15,489	32.9	4.4
Theology	2,710	24.4	3,625	31.4	7.0
Interdisciplinary studies	1,706	35.2	4,498	37.1	1.9

To answer this question, the various fields^{1/} were grouped on the basis of women's percentage representation in 1971, and the average change in women's percentage representation was computed for each. The results were as follows:

Women's percentage representation in 1971	Discipline division	Average percentage point change in 1977
80 - 99	Home economics, library science	-2.2
60 - 79	Foreign languages	4.1
40 - 59	Education, fine and applied arts, health professions, letters, public affairs and services	5.7
20 - 39	Area studies, biological sciences, communications, mathematics, psychology, social sciences, theology, interdisciplinary studies	5.9
0 - 19	Agriculture and natural resources, architecture and environmental resources, business and management, computer and information sciences, engineering, law	7.0

It is clear that the traditionally feminine fields of home economics and library science showed minute declines. There appears to be a slight tendency for women's percentage representation to have increased most in those fields

^{1/} Military science was omitted from these calculations because of its extremely small size. There were 2 degrees in this field in 1971 and 43 in 1977.

where, in 1971, they had a rather small representation. This tendency is not ^{2/} as marked in this chart as it was in the analogous chart in the earlier report.

Relative Popularity of Different Fields

Table 4 shows how the master's degrees awarded to women were distributed across the various fields, both in 1971 and 1977. For comparison purposes, analogous data are presented for men.

As has been true for many years, education continues to be the most popular fields for women, by far. It accounted for more than half the master's degrees awarded to women in both of the years being examined. (It was 53.8 percent in 1971, and 55.6 percent in 1977.) No other field accounted for more than 8 percent of the total. Thus, women are still highly concentrated in the education field in spite of the relatively poor job market for teachers. It should be noted, however, that for men, too, education is the most popular field for master's degrees.

It appears, from table 4, that men are somewhat more diversified than women in their choice of degree fields. For men, the second most popular field is business and management, which is almost as popular as education (approximately 24 percent vs. 26 percent). For the women, there are only three fields which account for more than 5 percent representation; while for the men, there are five such fields.

2/

George H. Brown, Master's Degree Awards to Women, U.S. Department of Health, Education, and Welfare, National Center for Education Statistics, NCES 78-336C.

Table 4.--Distribution of master's degrees, by sex and discipline division:
Aggregate United States, 1971 and 1977

Discipline division	Percentage of degrees awarded to:			
	<u>Women</u>		<u>Men</u>	
	1971	1977	1971	1977
All discipline divisions	99.9	100.0	100.0	100.0
Agriculture and natural resources	.2	.4	1.7	1.9
Architecture and environmental design	.3	.5	1.1	1.5
Area studies	.4	.3	.4	.3
Biological sciences	2.1	1.6	2.8	2.8
Business and management	1.1	4.5	18.5	23.8
Communications	.7	.9	.9	1.0
Computer and information sciences	.2	.3	1.0	1.4
Education	53.8	55.6	28.2	25.7
Engineering	.2	.5	11.7	9.2
Fine and applied arts	3.4	2.9	2.5	2.5
Foreign languages	3.4	1.5	1.2	.6
Health professions	3.5	5.9	1.0	2.5
Home economics	1.5	1.4	.1	.1
Law	(*)	.1	.7	.8
Letters	7.9	4.2	3.9	2.5
Library science	6.1	4.0	.9	.9
Mathematics	1.6	.9	2.7	1.4
Military science	0	0	(*)	(*)
Physical sciences	.9	.6	4.0	2.7
Psychology	1.8	2.7	2.0	2.6
Public affairs and services	4.4	6.0	3.1	6.4
Social sciences	5.1	3.4	8.5	6.2
Theology	.7	.8	1.5	1.5
Interdisciplinary studies	.6	1.1	.8	1.7

*Less than .05 percent.

NOTE.--Totals may not add to 100.0 percent because of rounding.

Chapter IV

DOCTORAL DEGREES

Overview

In 1971, the total number of doctoral degrees awarded in the United States was 32,113 of which 14.3 percent were awarded to women. Seven years later, in 1977, the total number of doctoral degrees awarded was up slightly, to 33,244 and the women's percentage was up to 24.3 percent, a gain of 10 percentage points.

The year-by-year data, (see table 5 and appendix C), show that the women's percentage representation increased every year between 1971 and 1977. However, women still account for only about one-fourth of all doctoral degrees awarded, although, at the bachelor's and the master's degree levels, they account for almost one-half.

It is also interesting to note that the absolute number of women doctoral degree recipients increased each year between 1971 and 1977. With respect to men, the absolute number of recipients fluctuated somewhat but was appreciably smaller in 1977 than in 1971 (25,150 vs. 27,534).

Field of Study

Table 5 shows, by discipline division, the total number of doctoral degrees awarded and the percentage of these that were awarded to women, for the years 1971 and 1977.

The 1971 data indicate that women predominated in only one field: home economics, where they accounted for 61 percent of the doctoral degrees. The 1977 data show the women predominating in three fields: foreign languages (51.5 percent); home economics (77.0 percent); and library science (53.3 percent). All of these are generally regarded as women's fields and, it might be noted, these are very small fields in terms of number of degrees awarded. The three fields together accounted for only 987 doctoral degrees in 1977 (men and women combined), out of a grand total of 33,244 degrees.

Again, as with the 1976 data, we find at least nominal increases in women's

Table 5.--Percentage of women among doctoral degree recipients, by discipline division: Aggregate United States, 1971 and 1977

Discipline division	1971		1977		Per- centage point gain
	Total doctoral degrees awarded	Percent awarded to women	Total doctoral degrees awarded	Percent awarded to women	
All discipline divisions	32,113	14.3	33,244	24.3	10.0
Agriculture and natural resources	1,086	2.9	893	6.9	4.0
Architecture and environ- mental design	36	8.3	73	15.1	6.8
Area studies	149	17.4	153	32.0	14.6
Biological sciences	3,645	16.3	3,403	21.4	5.1
Business and management	810	2.8	869	6.3	3.5
Communications	145	13.1	171	24.0	10.9
Computer and information sciences	128	2.3	216	8.8	6.5
Education	6,398	21.2	7,955	34.8	13.6
Engineering	3,638	.6	2,586	2.8	2.2
Fine and applied arts	621	22.2	662	32.5	10.3
Foreign languages	781	38.0	752	51.5	13.5
Health professions	466	16.5	538	32.0	15.5
Home economics	123	61.0	160	77.0	16.0
Law	20	0	60	13.3	13.3
Letters	2,416	23.5	2,202	38.2	14.7
Library science	39	28.2	75	53.3	25.1
Mathematics	1,199	7.8	823	13.2	5.4
Physical sciences	4,391	5.6	3,344	9.6	4.0
Psychology	1,782	24.0	2,761	35.9	11.9
Public affairs and services	178	24.2	335	32.8	8.6
Social sciences	3,659	13.9	3,784	22.1	8.2
Theology	312	1.9	1,125	2.8	.9
Interdisciplinary studies	91	15.4	304	30.6	15.2

percentage representation in 23 fields. The largest percentage point gain (25.1) occurred in library science which, as was noted above, is a traditionally women's field. Substantial percentage point gains are also apparent in home economics (16.0); health professions (15.5); and area studies (14.6). To better discern any overall trends with regard to the pattern of increases and decreases, the 23 fields^{1/} were grouped on the basis of the women's percentage representation in 1971, and the average gain in percentage points evident in 1977 was calculated for each group. This resulted in the following tabulation.

Women's percentage representation in 1971	Number of disciplines	Average percentage point gain in 1977
30 or more	2	14.7
20 - 29.9	6	14.0
10 - 19.9	6	11.6
Less than 10	9	6.2

With respect to doctoral degrees, women are making their greatest gains, in terms of percentage representation, in those fields where they have traditionally been most numerous. It is evident that the smaller their representation in 1971, the smaller their percentage point gain in 1977. This is the exact opposite of the relationship observed with respect to the bachelor's and master's degree data. It may be conjectured that the complex sociocultural forces which are influencing women to enter nontraditional fields of study have not been operating long enough to be manifest at the highest degree levels. If this is so, then the trends already observed at the bachelor's and master's degree levels may soon be evident at the doctoral degree level.

Relative Popularity of Different Fields

The distribution of women's doctoral degrees across discipline divisions in

^{1/}

Military science was omitted from these calculations because no degrees were awarded in this field in 1977.

1971 and in 1977 is shown in table 6. For comparison purposes, similar data are presented for men.

The most popular field for both women and men, for both years being examined, is education, which accounted for one-third of the women's doctorates in 1977 and one-fifth of the men's. The second most popular field for women was psychology at 12.2 percent. The only other fields which accounted for at least 10 percent of the women's doctorates were: letters (10.4 percent) and social sciences (10.3 percent).

The top six fields for women in 1977 were the same favorites as had been shown in the 1971 data. These six fields - education, psychology, letters, social sciences, biological sciences, and foreign languages - accounted for approximately 80 percent of all doctoral degrees awarded to women.

The data for men are not radically different. Four fields - biological sciences, education, letters, and social sciences - appeared among the top six fields for both men and women. The other two fields were engineering and physical sciences which are far more popular with men, while foreign languages and letters are more popular with women.

Table 6.--Distribution of doctoral degrees, by sex and discipline division:
Aggregate United States, 1971 and 1977

Discipline division	Percentage of degrees awarded to:			
	Women		Men	
	1971	1977	1971	1977
All discipline divisions	100.0	99.9	100.0	99.7
Agriculture and natural resources	(*)	.8	3.8	3.3
Architecture and environmental design	(*)	.1	(*)	.2
Area studies	(*)	.6	(*)	.4
Biological sciences	13.0	9.0	11.1	10.6
Business and management	(*)	.7	(*)	3.2
Communications	(*)	.5	(*)	.5
Computer and information sciences	(*)	.2	(*)	.8
Education	29.6	34.2	18.3	20.6
Engineering	(*)	.9	13.1	10.0
Fine and applied arts	3.0	2.7	1.7	1.8
Foreign languages	6.4	4.8	1.7	1.5
Health professions	1.7	2.1	1.4	1.5
Home economics	1.6	1.5	(*)	.1
Law	0	.1	(*)	.2
Letters	12.4	10.4	6.7	5.4
Library science	(*)	.5	(*)	.1
Mathematics	2.0	1.3	4.0	2.8
Physical sciences	5.3	4.0	15.0	12.0
Psychology	9.3	12.2	4.9	7.0
Public affairs and services	(*)	1.4	(*)	.9
Social sciences	11.0	10.3	11.4	11.7
Theology	(*)	.5	1.0	4.3
Interdisciplinary studies	(*)	1.1	(*)	.8

(*) Less than 0.5 percent.

NOTE.--Totals may not add to 100.0 percent because of rounding.

Chapter V

FIRST PROFESSIONAL DEGREES

Overview

A first professional degree is defined as one which meets all three of the following criteria:

(1) it signifies completion of the academic requirements to begin practice in the profession; (2) it is based on a program which requires at least 2 years of college work prior to entrance; and (3) a total of at least 6 academic years of college work is required to complete the degree program, including prior required college work plus the length of the professional curriculum itself. This chapter examines changes which took place between 1971 and 1977 in the representation of women among recipients of first professional degrees. Degree award data for the years 1972 through 1977 are presented in appendix D.

Traditionally, NCES has collected data on degree awards in eight professions: dentistry, medicine, optometry, osteopathic medicine, podiatry, veterinary medicine, law, and theology. The small number of degrees awarded in other professions were grouped into an "other" category. Starting in 1976, pharmacy and chiropractic were removed from the "other" category and given individual reporting status. It is obviously not possible to include these two professions when comparing the data for 1971 and 1977.

Field of Study

Table 7 shows the percentage representation of women among first professional degree recipients in 1971 and 1977, and also shows the changes in percentage points between these two years. Again, as was the case with the 1971-76 comparison in a previous report, at least modest gains in women's percentage representation are evident in all eight fields in which trends can be examined. Women are still a distinct minority in all of the fields, however. They are most highly represented in pharmacy (27.5 percent); veterinary medicine (22.8 percent); law (22.5 percent); and medicine (19.2 percent).

Perhaps it should be pointed out that the pharmacy degree referred to in table 7 is the Doctor of Pharmacy which entitles the recipient to immediately take the licensing examination and enter the profession. A total of only 527 Doctor of Pharmacy degrees were awarded in 1977. The vast majority of pharmacists enter the profession by a different route. They first obtain a bachelor's degree in pharmacy, and then serve one year as an apprentice before being eligible to take the licensing examination. In 1977, a total of 7,702 bachelor's degrees in pharmacy were awarded, of which 33.5 percent were awarded to women.

Table 7.--Percentage of women among first professional degree recipients,
by field of study: Aggregate United States, 1971 and 1977

Field	1971		1977		
	Total first professional degrees awarded	Percent awarded to women	Total first professional degrees awarded	Percent awarded to women	Per- centage point change
Total	38,276	6.5	64,807	18.7	12.2
Chiropractic (D.C.)			1,368	8.5	
Dentistry (D.D.S. or D.M.D.)	3,777	1.2	5,187	7.4	6.2
Law, general (L.L.B. or J.D.)	17,652	7.3	34,390	22.5	15.2
Medicine (M.D.)	8,986	9.2	13,574	19.2	10.0
Optometry (O.D.)	531	2.4	953	11.0	8.6
Osteopathic medicine (D.O.)	472	2.3	852	8.8	6.5
Pharmacy (D. Pharm.)			527	27.5	
Podiatry or podiatric medicine (Pod. D.)	240	2.1	486	3.3	1.2
Theological profes- sions, general	5,055	2.3	5,861	9.5	7.2
Veterinary medicine (D.V.M.)	1,252	7.8	1,586	22.8	15.0
Other	311	21.2	23	47.8	26.6

It is clear that via both routes, women are becoming increasingly prominent in the profession of pharmacy.

Disregarding the small "other" category in table 7, it is evident that women made their largest gains in percentage representation in veterinary medicine (15) and medicine (10). They now account for roughly one-fifth of all degrees awarded in each of these fields.

For the years 1971-1977, NCES collected data regarding the number of first year enrollments in first professional fields. These data, some of which were presented in an earlier report,^{1/} show that women's percentage representations among first-year enrollments increased every year during this period, in almost all of these fields. (Minor exceptions to this generalization occurred with respect to podiatry and optometry, although here, too, the trend was distinctly upward.) It, therefore, seems likely the women's percentage representation among degree recipients will continue to increase at least for the next few years.

Relative Popularity of Different Fields

The distributions of women's first professional degrees across fields, for both 1971 and 1977, are shown in table 8 with comparable data for men.

Looking first at the women's data, we see that law is by far the most popular field, accounting for 63.9 percent of all the women's first professional degrees in 1977. Law is up about 12 percentage points from its value in the 1971 data, but up only .4 percentage points from 1976. The only other field which accounted for a substantial fraction of the women's degrees is medicine, at 21.4 percent, down about 12 percentage points from its 1971 value. Clearly, law is increasing in relative popularity while medicine is declining. (This, incidentally, is the same conclusion drawn in the earlier published report.)

Law and medicine together account for 85 percent of all first professional degrees awarded to women. (The corresponding value evident in the 1976 data was 86 percent.) The other fields account for quite small percentages of first professional degrees awarded to women. Pharmacy accounts for only 1.2 percent,

^{1/}

Brown, George H., First Professional Degree Awards to Women, U.S. Department of Health, Education, and Welfare, National Center for Education Statistics, NCES 78-336D.

Table 8.--Distribution of first professional degrees, by sex and field of study: Aggregate United States, 1971 and 1977

Field	Percentage of degrees awarded to:			
	Women		Men	
	1971	1977	1971	1977
Total	100.0	100.0	100.0	100.0
Chiropractic (D.C.)	-	1.0	-	2.4
Dentistry (D.D.S. or D.M.D.)	1.8	3.2	10.4	9.1
Law, general (L.L.B. or J.D.)	52.2	63.9	45.7	50.6
Medicine (M.D.)	33.4	21.4	22.8	20.8
Optometry (O.D.)	.5	.9	1.4	1.6
Osteopathic medicine (D.O.)	.4	.6	1.3	1.5
Pharmacy (D. Pharm.)	-	1.2	-	.7
Podiatry or podiatric medicine (Pod. D.)	.2	.1	.7	.9
Theological professions, general	4.8	4.6	13.8	10.1
Veterinary medicine (D.V.M.)	4.0	3.0	3.2	2.3
Other	2.7	.1	.7	0

NOTE.--Absence of data is denoted by -.

which might seem a bit surprising in view of the fact that women accounted for 27.5 percent of all Doctor of Pharmacy degrees. The explanation lies in the fact that the total number of first professional degrees awarded in pharmacy was quite small: 527.

Now, looking at the men's data in table 8, we see they are not greatly different from the women's. With both sexes, the three top ranking fields are law, medicine, and theology, in that order. It appears that in choosing a profession, women are more attracted to law than are men, while men are more attracted to dentistry than are women.

Law and medicine together account for 71.4 percent of the men's first professional degrees. The corresponding value for women was 85.3 percent. Thus, it appears that men are somewhat more diversified than women in their choice of field of professional training.

APPENDIXES

Appendix A.--Percentage of women among bachelor's degree

Discipline division	1971-72		1972-73	
	Total bachelor's degrees awarded	Percent awarded to women	Total bachelor's degrees awarded	Percent awarded to women
All discipline divisions	894,110	43.7	930,272	43.9
Agriculture and natural resources	13,560	5.5	14,819	7.4
Architecture and environmental design	6,452	12.0	6,980	13.2
Area studies	2,797	52.5	3,080	52.3
Biological sciences	37,638	29.6	42,672	30.1
Business and management	123,306	9.7	128,244	10.8
Communications	12,340	35.5	14,317	36.6
Computer and information sciences	3,402	13.6	4,305	14.9
Education	192,368	74.1	195,640	73.5
Engineering	51,465	1.0	51,613	1.2
Fine and applied arts	33,886	59.9	36,109	60.4
Foreign languages	19,359	75.1	19,502	76.0
Health professions	28,893	75.7	33,932	77.0
Home economics	12,165	96.5	13,640	96.3
Law	503	6.6	474	8.4
Letters	73,556	60.1	71,298	58.9
Library science	989	93.3	1,160	94.4
Mathematics	23,848	39.1	23,223	40.2
Military science	379	0	272	0
Physical sciences	20,887	15.1	20,809	15.0
Psychology	43,421	46.4	48,096	47.8
Public affairs and services	12,746	47.9	18,009	46.9
Social sciences	159,594	36.3	157,702	36.3
Theology	3,882	27.8	3,548	25.7
Interdisciplinary studies	16,674	31.1	20,810	34.1

recipients, by discipline division: 1971-72 through 1976-77

1973-74		1974-75		1975-76		1976-77	
Total bachelor's degrees awarded	Percent awarded to women	Total bachelor's degrees awarded	Percent awarded to women	Total bachelor's degrees awarded	Percent awarded to women	Total bachelor's degrees awarded	Percent awarded to women
954,376	44.4	931,663	45.4	934,443	45.6	928,256	46.2
16,303	9.7	17,573	14.1	19,460	18.3	21,531	22.2
7,840	14.8	8,238	17.4	9,169	19.2	9,252	21.4
3,203	54.3	3,066	55.1	3,111	55.5	2,970	56.0
48,856	31.5	52,236	33.3	54,913	34.8	54,193	36.4
133,905	13.1	135,455	16.4	145,035	19.8	153,783	23.6
17,096	38.4	19,249	40.5	21,282	41.5	23,221	44.3
4,757	16.4	5,039	19.0	5,664	19.8	6,426	23.9
186,623	73.5	168,749	73.3	156,528	72.8	145,398	72.2
50,693	1.6	47,303	2.2	46,717	3.2	49,677	4.5
40,016	60.2	41,061	61.9	42,371	60.9	42,102	61.3
19,479	76.4	18,172	77.0	15,587	76.4	14,302	76.2
41,869	77.4	49,476	77.8	54,339	78.8	57,845	79.2
15,433	96.4	16,873	96.0	17,523	95.9	17,567	95.9
494	10.5	436	14.2	531	18.8	559	27.5
65,325	58.0	57,933	57.3	52,292	56.9	47,502	56.7
1,164	92.6	1,069	92.5	843	93.1	781	90.9
21,813	41.0	18,346	42.0	16,085	40.7	14,303	41.6
328	0.3	390	0	1,206	0.2	992	.3
21,287	16.6	20,896	18.4	21,559	19.2	22,618	20.1
52,256	50.5	51,436	52.7	50,363	54.4	47,794	56.7
24,264	43.5	28,597	45.6	33,592	43.7	36,745	45.1
152,203	36.6	136,773	37.4	127,936	37.9	118,322	39.4
4,231	28.1	4,818	27.4	5,537	27.3	6,136	25.7
24,938	37.1	28,479	42.2	32,800	45.0	34,237	47.0

Appendix B.--Percentage of women among master's degree

Discipline Division	1971-72		1972-73	
	Total master's degrees awarded	Percent awarded to women	Total master's degrees awarded	Percent awarded to women
All discipline divisions	252,774	40.6	264,525	41.4
Agriculture and natural resources	2,691	7.1	2,822	7.9
Architecture and environmental design	1,928	14.6	2,319	15.7
Area studies	978	40.7	1,032	37.0
Biological sciences	6,126	33.1	6,294	30.6
Business and management	30,511	3.9	31,239	4.9
Communications	2,200	34.4	2,406	35.7
Computer and information sciences	1,977	11.4	2,113	10.6
Education	98,280	57.3	105,646	58.2
Engineering	16,966	1.6	16,632	1.7
Fine and applied arts	7,540	46.3	7,254	44.8
Foreign languages	4,640	65.1	4,323	64.3
Health professions	7,361	56.4	8,504	57.5
Home economics	1,666	92.7	1,679	90.7
Law	932	5.8	1,071	7.5
Letters	12,759	57.7	12,384	57.1
Library science	7,435	79.9	7,743	78.1
Mathematics	5,209	29.8	5,033	29.9
Military science	2	0	0	0
Physical sciences	6,307	14.1	6,274	13.5
Psychology	5,293	38.4	5,882	40.2
Public affairs and services	9,608	47.0	11,190	46.7
Social sciences	17,469	28.2	17,361	27.6
Theology	2,755	23.4	2,778	26.7
Interdisciplinary studies	2,143	39.2	2,546	45.6

recipients, by discipline division: 1971-72 through 1976-77

1973-74		1974-75		1975-76		1976-77	
Total master's degrees awarded	Percent awarded to women	Total master's degrees awarded	Percent awarded to women	Total master's degrees awarded	Percent awarded to women	Total master's degrees awarded	Percent awarded to women
278,259	43.1	293,651	44.8	313,001	46.4	318,241	47.1
2,939	9.8	3,076	11.8	3,351	14.3	3,735	14.6
2,733	18.4	2,953	20.3	3,215	20.8	3,219	22.5
1,142	38.9	1,140	43.2	945	45.3	989	46.9
6,581	30.6	6,591	30.0	6,621	31.8	7,154	33.8
32,820	6.6	36,450	8.4	42,728	11.6	46,650	14.3
2,642	36.8	2,796	42.1	3,128	41.8	3,092	44.4
2,276	12.9	2,299	14.7	2,603	14.5	2,798	16.7
112,739	59.9	120,233	62.2	128,410	64.3	126,730	65.8
15,385	2.3	15,359	2.4	16,349	3.6	16,251	4.4
8,001	45.9	8,363	46.8	8,820	48.9	8,638	51.2
3,991	66.1	3,826	66.9	3,541	66.7	3,178	69.5
9,741	60.2	10,842	61.8	12,696	66.5	13,092	67.9
1,869	91.1	1,901	89.3	2,187	91.5	2,340	91.1
1,181	7.1	1,245	8.0	1,442	12.0	1,574	13.2
12,165	56.6	11,873	58.8	11,356	58.3	10,495	59.5
8,185	77.8	8,123	78.8	8,084	78.3	7,592	79.6
4,840	31.0	4,338	32.9	3,863	34.0	3,698	35.1
0	0	0	0	0	0	43	0
6,087	14.6	5,830	14.5	5,485	15.0	5,345	16.6
6,616	39.8	7,104	42.9	7,859	46.7	8,320	48.1
12,694	45.3	15,505	44.6	17,333	45.3	19,696	45.5
17,297	28.8	16,942	30.0	15,902	31.6	15,489	32.9
2,898	27.2	3,230	30.9	3,292	32.1	3,625	31.4
3,437	45.8	3,632	47.7	3,791	46.5	4,498	37.1

Appendix C.--Percentage of women among doctoral degree

Discipline division	1971-72		1972-73	
	Total doctoral degrees awarded	Percent awarded to women	Total doctoral degrees awarded	Percent awarded to women
All discipline divisions	33,369	14.3	34,790	15.8
Agriculture and natural resources	971	2.7	1,059	2.6
Architecture and environmental design	50	14.0	58	6.9
Area studies	159	18.2	165	29.1
Biological sciences	3,654	17.0	3,637	19.5
Business and management	902	2.2	932	5.7
Communications	111	13.5	139	18.0
Computer and information sciences	167	7.2	196	7.7
Education	7,041	23.6	7,314	24.8
Engineering	3,671	.6	3,492	1.5
Fine and applied arts	572	25.2	616	27.1
Foreign languages	841	37.5	991	40.3
Health professions	442	18.1	646	25.0
Home economics	104	71.2	165	75.8
Law	40	2.5	37	2.7
Letters	2,589	27.2	2,754	30.1
Library science	64	43.8	102	41.2
Mathematics	1,128	7.9	1,068	9.6
Physical sciences	4,103	6.7	4,016	6.9
Psychology	1,881	24.8	2,089	29.0
Public affairs and services	211	21.8	219	19.2
Social sciences	4,079	14.7	4,230	15.6
Theology	441	4.8	666	3.3
Interdisciplinary studies	148	14.9	199	17.1

recipients, by discipline division: 1971-72 through 1976-77

1973-74		1974-75		1975-76		1976-77	
Total doctoral degrees awarded	Percent awarded to women	Total doctoral degrees awarded	Percent awarded to women	Total doctoral degrees awarded	Percent awarded to women	Total doctoral degrees awarded	Percent awarded to women
33,826	19.1	34,086	21.3	34,076	22.9	33,244	24.3
930	3.6	991	3.3	928	6.6	893	6.9
69	5.8	69	15.9	82	15.9	73	15.1
163	27.6	166	22.9	182	31.9	153	32.0
3,440	20.3	3,384	22.0	3,397	21.5	3,403	21.4
983	5.1	1,011	4.1	956	5.4	869	6.3
175	16.6	165	27.9	204	24.5	171	24.0
198	4.6	213	6.6	244	9.4	216	8.8
7,293	27.1	7,443	30.9	7,769	33.4	7,955	34.8
3,312	1.7	3,108	2.1	2,821	2.3	2,586	2.8
585	24.8	649	31.3	620	27.9	662	32.5
923	43.7	857	47.0	864	47.9	752	51.5
578	22.7	618	28.6	577	28.8	538	32.0
136	66.2	156	67.3	178	71.3	160	77.0
27	3.7	21	0	76	3.9	60	13.3
2,633	32.1	2,498	34.0	2,452	36.5	2,202	38.2
60	40.0	56	41.1	71	45.0	75	53.3
1,031	9.7	975	11.3	856	11.0	823	13.2
3,631	7.0	3,628	8.3	3,433	8.7	3,344	9.6
2,339	29.5	2,442	30.9	2,581	31.7	2,761	35.9
230	22.2	285	24.2	319	32.0	335	32.8
4,126	18.0	4,209	20.8	4,160	21.6	3,784	22.1
768	2.9	872	3.8	1,033	4.1	1,125	2.8
196	26.0	270	27.4	273	32.2	304	30.6

Appendix D.--Percentage of women among first professional degree

Field	1971-72		1972-73	
	Total first profes- sional degrees awarded	Percent awarded to women	Total first profes- sional degrees awarded	Percent awarded to women
Total	43,774	6.3	50,435	7.1
Chiropractic (D.C.)				
Dentistry (D.D.S. or D.M.D.)	3,894	1.2	4,086	1.4
Law, general (L.L.B. or J.D.)	22,017	7.2	27,484	8.1
Medicine (M.D.)	9,331	9.0	10,398	9.0
Optometry (O.D.)	670	2.2	771	2.6
Osteopathic medicine (D.O.)	484	3.5	523	2.9
Pharmacy (D. Pharm.)				
Podiatry or podiatric medicine (Pod. D.)	279	.3	278	.3
Theological professions, general	5,568	1.9	5,291	3.4
Veterinary medicine (D.V.M.)	1,247	9.4	1,299	10.2
Other	284	20.8	305	11.8

recipients, by field of study: 1971-72 through 1976-77

1973-74		1974-75		1975-76		1976-77	
Total first profes- sional degrees awarded	Percent awarded to women	Total first profes- sional degrees awarded	Percent awarded to women	Total first profes- sional degrees awarded	Percent awarded to women	Total first profes- sional degrees awarded	Percent awarded to women
54,278	9.9	56,259	12.5	63,061	15.6	64,807	18.7
				1,577	9.3	1,368	8.5
4,478	2.0	4,809	3.1	5,478	4.5	5,187	7.4
29,652	11.5	29,497	15.1	32,535	19.2	34,390	22.5
11,447	11.2	12,550	13.2	13,540	16.2	13,574	19.2
791	4.2	792	5.0	975	7.7	953	11.0
685	2.8	665	5.3	818	7.2	852	8.8
				439	29.6	527	27.5
371	1.1	351	1.1	428	2.6	486	3.3
5,048	5.5	5,098	6.8	5,709	7.6	5,861	9.5
1,384	11.2	1,415	15.9	1,532	18.1	1,586	22.8
422	26.1	1,082	11.0	30	10.0	23	47.8

☆U.S. GOVERNMENT PRINTING OFFICE: 1979 O— 627-982/1967 REGION 3-1